AMENDMENTS TO THE CLAIMS

1. (Currently Amended) An interventional procedure simulation system, comprising a control unit and an interface unit, said control unit communicating with said interface unit to simulate handling of a number of real nested instruments simultaneously interfaced by said interface unit and, said instruments being arranged to move and ~~rotated~~ rotate independently of each other and said movements and rotations being propagated to the other instruments, said control unit further comprising an instruction set comprising:

~~*~~ a first instruction set for handling and processing an input from a user,

~~*~~ based on said input, generating a second instruction set for controlling said interface,

~~*~~ a first data set comprising characteristics for said instruments,

~~*~~ a second data set comprising data on a body part to be simulated,

~~*~~ a third instruction set for generating control signals relating to an interaction between said simulated instruments and a surrounding geometry relating to a part of said simulated body part, ~~and~~

a fourth instruction set for controlling movements of a number of serially arranged and interconnected carriages corresponding to movements of said instruments in said interface unit, and

a fifth instruction set for calculating an effect of a first instrument inserted into a second instrument in a nested manner, each instrument having properties, being at least one of a natural shape, stiffness, length, diameter and radioopacity, said instruction set being configured to calculate movements of said first instrument propagated to the second instrument.

2. (Previously Presented) The system of claim 1, wherein said interventional procedure is at least one of a diagnostic, a cardiovascular or endovascular simulation system.

3. (Previously Presented) The system of claim 1, wherein a user's movements of said instruments, a surrounding simulated anatomy and other present instruments, affect a shape of an instrument simulated and displayed.

4. (Previously Presented) The system of claim 3, wherein for each instrument collisions with simulated surrounding calculations are executed by said control unit, which affects the shape and position of said instrument in said simulated body part.

5. (Previously Presented) The system of claim 1, wherein an instrument is a distal part of a tool or an end of a tool.

6. (Previously Presented) The system of claim 1, wherein different instrument types can be used comprising at least one of balloons, stems, electrodes, wires, catheters, and distal protection.

7. (Previously Presented) The system of claim 6, wherein each instrument type has different properties associated to it and provided as an instruction set, which describes substantially all properties of said instrument.

8. (Previously Presented) The system of claim 6, wherein the properties of said instruments further describe interaction with at least one of surrounding geometry, visual properties, stiffness, and shape..

9. (Previously Presented) The system of claim 8, wherein simulated properties of said instrument are altered in real-time.

10. (Previously Presented) The system of claim 1, wherein the system comprises a model used for rendering objects depending on properties to be displayed and a collision model for computing collisions between the simulated instrument and body part.

11. (Previously Presented) The system of claim 1, wherein a model of said body or part of said body part is a three-dimensional data obtained through a body scanning.

12. (Previously Presented) The system of claim 3, wherein said instrument movements and rotations interact simulated with other instruments.

13. (Currently Amended) A method for simulating an interventional procedure, comprising the steps of:

~~*~~ providing a control unit and an interface unit, said control unit communicating with said interface unit to simulate handling of a number of nested real instruments simultaneously interfaced by said interface unit and that each nested tool ~~can~~ is configured to be moved and rotated independently of the other and said movements and rotations are propagated to other instruments,

~~*~~ providing a first instruction set for handling and processing input from a user,

~~*~~ generating a second instruction set based on said input, for controlling said interface,

~~*~~ retrieving information on said instrument comprising a first data set comprising characteristics for said instruments,

~~*~~ providing a second data set comprising data on a body part to be simulated, ~~and~~

~~*~~ generating control signals relating to interaction between said instrument and a surrounding geometry by a third instruction set, ~~and~~

~~*~~ controlling movements of a number of serially arranged and interconnected carriages corresponding to movements of said instruments in said interface unit,

calculating an effect of a first instrument inserted into a second instrument in a nested manner, each instrument having properties, being at least one of a natural shape, stiffness, length, diameters and radioopacity, and

calculating movements of said first instrument propagated to the second instrument.

14. (Previously Presented) The method of claim 13, changing instrument simulated and displayed based on a user's movements of said instruments, a surrounding simulated anatomy and other present instruments, effect a shape of an instrument simulated and displayed.

15. (Previously Presented) The method of claim 13, wherein an instrument is a distal part of a tool or an end of a tool.

16. (Previously Presented) The method of claim 13, wherein different instrument types can be used comprising at least one of balloons, stents, electrodes, wires, catheters and distal protection.

17. (Previously Presented) The method of claim 16, wherein each instrument type has different properties associated to it and provided as an instruction set, which describes substantially all properties of said instrument.

18. (Previously Presented) The method of claim 16, wherein the properties of said instruments further describe interaction with at least one of surrounding geometry, visual properties, stiffness and shape.

19. (Previously Presented) The method of claim 16, wherein simulated properties of said instrument are altered in real-time.

20. (Currently Amended) A system for an interventional procedure simulation, said system comprising a control unit and an interface unit, the system further comprising:

~~*~~ means for communication between said control unit ~~an~~ and said interface unit,

~~*~~ means ~~in said interface unit to~~for simultaneously ~~simulate~~ simulating handling of a number of nested instruments interfaced by said interface unit, each of said instruments being independently movable and rotatable,

~~*~~ an interface member ~~for receiving~~configured to receive input from a user including an instruction set,

~~*~~ means for handling and processing said input,

~~*~~ means for controlling said interface,

~~*~~ a first database ~~for storing~~configured to store characteristics for said instruments,

~~*~~ a second database ~~for storing~~configured to store characteristics about a body part to be simulated,

~~*~~ means for generating control signals relating to an interaction between said simulated instruments and a surrounding geometry relating to a part of said simulated body part, ~~and~~

~~*~~ means for controlling movements of a number of serially arranged and interconnected carriages corresponding to movements of said instruments in said interface device, and

means for simulating an effect of a first instrument inserted into a second instrument in a nested manner, each instrument having properties, being at least one of a natural shape, stiffness, length, diameter, and radioopacity, said instruction set.

21. (Previously Presented) The system of claim 20 wherein said characteristics about a body part to be simulated are obtained through a scanning process.

22. (Currently Amended) A computer program for interventional procedure simulation in a system comprising a control unit and an interface unit, said program comprising:

~~*~~ communication instruction set for communication between said control unit a and said interface unit,

~~*~~ a first instruction set for simulating handling of a number of simulated nested instruments, independently movable and rotatable, simultaneously interfaced by said interface unit, said control unit further comprising an instruction set, comprising:

~~*~~ a second instruction set for handling and processing input from ~~said~~ a user,

~~*~~ a third instruction set for controlling said interface,

~~*~~ a first data set comprising characteristics for said instruments,

~~*~~ a second data set comprising data on a body part to be simulated,

~~*~~ a fourth instruction set for generating control signals relating to an interaction between said simulated nested instruments and a surrounding geometry relating to a part of said simulated body part,

~~*~~ a fifth instruction set for controlling movements of a number of serially arranged and interconnected carriages corresponding to movements of said instruments in said interface device, ~~and~~

~~*~~ a sixth instruction set for ~~outputting simulation on a visualization member~~ calculating an effect of a first instrument inserted into a second instrument in a nested manner, each instrument having properties, being at least one of a natural shape, stiffness, length,

diameter and radioopacity, said sixth instruction set being configured to calculate movements of said first instruction instrument propagated to the second instrument, and

a seventh instruction set for outputting simulation on a visualization member.

23. (Previously Presented) A program storage device readable by a machine and encoding a program of instructions for executing the computer program for interventional procedure simulation according to claim 22.

24. (Currently Amended) A computer readable medium having computer readable program code embodied therein to enable an interventional procedure simulation in a system comprising a control unit and an interface unit, said program comprising:

~~*~~ a communication instruction set for communication between said control unit and said interface unit,

~~*~~ a first instruction set for simulating handling of a number of simulated nested instruments, independently movable and rotatable, simultaneously interfaced by said interface unit, said control unit further comprising an instruction set,

comprising:

~~*~~ a second instruction set for handling and processing input from a user,

~~*~~ a third instruction set for controlling said interface,

~~*~~ a first data set comprising characteristics for said instruments,

~~*~~ a second data set comprising data on a body part to be simulated,

~~*~~ a fourth instruction set for generating control signals relating to an interaction between said simulated nested instruments and a surrounding geometry relating to a part of said simulated body part,

~~*~~ a fifth instruction set for ~~controlling movements of a number of serially arranged and interconnected carriages corresponding to movements of said instruments in said interface device, and~~

~~*~~ ~~a sixth instruction set for~~ calculating an effect of a first instrument inserted into a second instrument in a nested manner, each instrument having properties, being at least one of a natural shape, stiffness, length, diameter and radioopacity, said fifth instruction set propagated to the second instrument~~outputting simulation on a visualization member~~, and

a sixth instruction set for outputting simulation on a visualization member.

25. (Cancelled)

26. (Currently Amended) A system for an interventional procedure simulation, said system comprising a control unit and an interface unit, the system further comprising:

~~*~~ means for communication between said control unit an said interface unit for receiving at least ~~one~~ two nested real instruments~~instrument~~ including a first instrument inserted into a second instrument, used in said interventional procedure,

~~*~~ means for receiving three-dimensional information on a body part to be simulated, and

means for generating control signals relating to an interaction between said first and second instruments and a surrounding geometry relating to a part of said simulated body part, said control signals being configured to control movements of a number of serially arranged and interconnected carriages corresponding to movements of said instruments in said interface device with respect to movements of said first instrument propagated to the second instrument.

27. (Previously Presented) The system of claim 26, wherein said three-dimensional information is obtained through a scanning process.

28. (Cancelled)

29. (Currently Amended) A method of an interventional procedure training, using a system comprising a control unit and an interface unit, the method comprising:

~~*~~ using ~~an~~a real nested interventional procedure tool, including a first tool inserted into a second tool to be simulated in said interface device

~~*~~ simulating an interaction between said nested first and second tools~~instruments~~, independently movable and rotatable, and a surrounding geometry relating to a part of said simulated body part, and

using said simulation for training a user.

30. (Cancelled)